



SLOVENSKI STANDARD
SIST EN 305 174-2 V1.1.1:2018
01-maj-2018

Dostop, terminali, prenos in multipleksiranje (ATTM) - Upravljanje uvajanja širokopasovnosti in življenjskega cikla virov - 2. del: Strani ICT

Access, Terminals, Transmission and Multiplexing (ATTM) - Broadband Deployment and Lifecycle Resource Management - Part 2: ICT Sites

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: **ETSI EN 305 174-2 V1.1.1 (2018-02)**

SIST EN 305 174-2 V1.1.1:2018
<https://standards.iteh.ai/catalog/standards/sist/137cc9d3-6d7c-4dd1-abdd-e093f341b618/sist-en-305-174-2-v1-1-1-2018>

ICS:

13.020.60	Življenjski ciklusi izdelkov	Product life-cycles
35.020	Informacijska tehnika in tehnologija na splošno	Information technology (IT) in general

SIST EN 305 174-2 V1.1.1:2018 **en**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 305 174-2 V1.1.1:2018

<https://standards.iteh.ai/catalog/standards/sist/b37ec9d3-6d7c-4dd1-abdd-e093f341b618/sist-en-305-174-2-v1-1-1-2018>

ETSI EN 305 174-2 V1.1.1 (2018-02)



Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; (Part 2: ICT Sites)

[SIST EN 305 174-2 V1.1.1:2018](https://standards.iteh.ai/catalog/standards/sist/f37ec9d3-6d7c-4dd1-abdd-e093f341b618/sist-en-305-174-2-v1-1-1-2018)

<https://standards.iteh.ai/catalog/standards/sist/f37ec9d3-6d7c-4dd1-abdd-e093f341b618/sist-en-305-174-2-v1-1-1-2018>

Reference

REN/ATTM-002

Keywordsbroadband, energy management, ICT,
sustainability**ETSI**650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Important notice

<https://standards.iteh.ai/catalog/standards/sist/b37ec9d3-6d7c-4dd1-abdd-e023441b1831/sist-en-305-174-2-v1.1.1-2018>
The present document can be downloaded from:
<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at <https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:
<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2018.
All rights reserved.

DECT™, PLUGTESTS™, UMTS™ and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.
3GPP™ and LTE™ are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

oneM2M logo is protected for the benefit of its Members.

GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	5
Foreword.....	5
Modal verbs terminology.....	6
Introduction	6
1 Scope	7
2 References	7
2.1 Normative references	7
2.2 Informative references.....	7
3 Definitions and abbreviations.....	8
3.1 Definitions.....	8
3.2 Abbreviations	9
4 Broadband deployment and ICT sites	10
4.1 ICT sites	10
4.1.1 General.....	10
4.1.2 Operator Site (OS).....	11
4.1.3 Network Data Centre (NDC)	11
4.2 Element of ICT sites.....	12
4.2.1 ICT equipment	12
4.2.2 Power supply and power distribution	12
4.2.3 Environmental control	13
4.2.4 Telecommunications cabling infrastructure	13
4.2.5 Security systems	13
4.3 Availability.....	13
5 Standardization review for ICT sites.....	14
6 Requirements for ICT sites.....	14
6.1 General engineering to support energy management	14
6.1.1 General.....	14
6.1.2 Design.....	14
6.1.2.1 General	14
6.1.2.2 Power supply and distribution.....	15
6.1.2.3 Environmental control.....	15
6.1.2.4 Lighting.....	15
6.1.2.5 Measurement of energy consumption	15
6.1.3 Operation	16
6.1.3.1 General	16
6.1.3.2 Power supply and distribution.....	16
6.1.3.3 Environmental control.....	16
6.1.3.4 ICT equipment and software	17
6.1.3.5 Measurement of energy consumption	17
6.2 General engineering to support interoperability	17
6.3 Monitoring of energy management	17
6.4 Managing EoL of ICT equipment	17
Annex A (informative): Recommendations for general engineering	18
A.1 General	18
A.2 Design.....	18
A.3 Operation.....	18
Annex B (informative): Future structure of this multi-part deliverable	19
History	20

List of figures

Figure 1: Network sub-systems of fixed broadband access network infrastructure	10
Figure 2: Network sub-systems of mobile broadband access network infrastructure	11
Figure 3: Schematic of ICT sites composition and connectivity	12

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 305 174-2 V1.1.1:2018](https://standards.iteh.ai/catalog/standards/sist/f37ec9d3-6d7c-4dd1-abdd-e093f341b618/sist-en-305-174-2-v1-1-1-2018)

<https://standards.iteh.ai/catalog/standards/sist/f37ec9d3-6d7c-4dd1-abdd-e093f341b618/sist-en-305-174-2-v1-1-1-2018>

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

Foreword

This European Standard (EN) has been produced by ETSI Technical Committee Access, Terminals, Transmission and Multiplexing (ATTM).

The present document is part 2 of a multi-part deliverable, covering lifecycle resource management of broadband deployment as identified below:

ETSI EN 305 174-1: "Overview, common and generic aspects";
<https://standards.ietf.org/catalog/standards/sist/b37ec9d3-6d7c-4dd1-abdd-e093f341b618/sist-en-305-174-2-v1-1-1-2018>

ETSI EN 305 174-2: "ICT Sites";

ETSI TS 105 174-4: "Access Networks";

ETSI EN 305 174-5: "Customer network infrastructures";

ETSI TS 105 174-6: "Cable Access Networks";

ETSI TS 105 174-7: "Digital multiservice cities";

ETSI EN 305 174-8: "Management of end of life of ICT equipment (ICT waste / end of life)".

Other documents are planned for development to extend this multi-part deliverable. These are listed in annex B and are mentioned in the present document.

National transposition dates

Date of adoption of this EN:	22 February 2018
Date of latest announcement of this EN (doa):	31 May 2018
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 November 2018
Date of withdrawal of any conflicting National Standard (dow):	30 November 2018

Modal verbs terminology

In the present document "shall", "shall not", "should", "should not", "may", "need not", "will", "will not", "can" and "cannot" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"must" and "must not" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Introduction

The increasing interaction between the different elements of the Information Communication Technology (ICT) sector (hardware, middleware, software and services) supports the concept of convergence in which:

- multi-service packages can be delivered over a common infrastructure;
- a variety of infrastructures is able to deliver these packages;
- a single multi-service-package may be delivered over different infrastructures.

As a result of this convergence, the development of new services, applications and content has resulted in:

- an increased demand for bandwidth, reliability, quality and performance, with a consequent increase in the demand for power which has implications for cost and, in some cases, availability;
- an associated continuous evolution of ICT equipment.

It is therefore important to consider the environmental viability of all network elements necessary to deliver the required services in terms of the management of their operational aspects i.e. energy management (including energy efficiency) and the management of the End-of-Life (EoL) of the ICT equipment.

NOTE: The term "environmental viability" is used while recognizing that well established treatments of "sustainability" feature three separate viability objectives (environmental, economic and social). For the purposes of this multi-part deliverable only operational aspects of environmental viability are considered. A wider approach to environmental viability takes other factors into account including the use of raw materials and avoidance of hazardous substances in the construction of infrastructure or ICT equipment- these factors are not considered.

New technologies and infrastructure strategies are expected to enable operators to decrease the energy consumption, for a given level of service, of their existing and future infrastructures, thus decreasing their costs. This requires a common understanding among market participants that only standards can produce.

This multi-part deliverable specifies the general engineering of various broadband infrastructures to enable the most effective energy management (and management of other resources) and the appropriate measures for EoL treatment of ICT equipment. Certain of the standards may specify requirements for interoperability.

The present document is part 2 of a multi-part deliverable and specifies requirements for ICT sites within broadband deployment infrastructures.

The present document has been produced by ETSI Technical Committees Access, Terminals, Transmission and Multiplexing (ATTM) and Cable in close collaboration with CENELEC, via the Installations and Cabling Co-ordination Group (ICCG).

1 Scope

The present document is part 2 of a multi-part deliverable which specifies the general engineering of various broadband infrastructures to enable the most effective energy management (and management of other resources) and the appropriate measures for EoL treatment of ICT equipment.

The present document specifies the requirements for resource management of ICT sites, as a combination of:

- energy management;
- management of the End-of-Life (EoL) procedures for ICT equipment by reference to ETSI EN 305 174-8 [1].

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

- [1] ETSI EN 305 174-8: "Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; Part 8: Management of end of life of ICT equipment (ICT waste / end of life)".
- [2] ETSI EN 305 200-2-1: "Access, Terminals, Transmission and Multiplexing (ATTM); Energy management; Operational infrastructures; Global KPIs; Part 2: Specific requirements; Sub-part 1: ICT Sites".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] CEN EN 15978: "Information Sustainability of construction works - Assessment of environmental performance of buildings - Calculation method".
- [i.2] CENELEC CLC/TR 50600-99-1: "Information technology - Data centre facilities and infrastructures - Part 99-1: Recommended practices for energy management".
- [i.3] CENELEC EN 50600-1: "Information technology - Data centre facilities and infrastructures - Part 1: General concepts".
- [i.4] CENELEC EN 50600-2-2: "Information technology - Data centre facilities and infrastructures - Part 2-2: Power supply and power distribution".

- [i.5] CENELEC EN 50600-2-3: "Information technology - Data centre facilities and infrastructures - Part 2-3: Environmental control".
- [i.6] CENELEC EN 50600-2-4: "Information technology - Data centre facilities and infrastructures - Part 2-4: Telecommunications infrastructure".
- [i.7] CENELEC EN 50600-4-2: "Information technology - Data centre facilities and infrastructures - Part 4-2: Power usage effectiveness".
- [i.8] CENELEC EN 50600-4-3: "Information technology - Data centre facilities and infrastructures - Part 4-3: Renewable energy factor".
- [i.9] ISO EN 14001: "Environmental management systems. Requirements with guidance for use".
- [i.10] ISO EN 14040: "Environmental management. Life cycle assessment. Principles and framework".
- [i.11] ISO EN 14044: "Environmental management. Life cycle assessment. Requirements and guidelines".
- [i.12] ISO EN 50001: "Energy management systems. Requirements with guidance for use".
- [i.13] ETSI EN 305 200-3-1: "Access, Terminals, Transmission and Multiplexing (ATTM); Energy management; Operational infrastructures; Global KPIs; Part 3: ICT Sites; Sub-part 1: DCEM".
- [i.14] ETSI TS 105 174-2: "Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Energy Management; Part 2: ICT sites".
- [i.15] EU Code of Conduct for AC Uninterruptible Power Supplies.
- [i.16] ISO/IEC 20000 series: "Information technology. Service management".
- [i.17] CENELEC EN 50600-3-1: "Information technology - Data centre facilities and infrastructures - Part 3-1: Management and operational information".
- [i.18] Mandate M/462: "Standardisation mandate addressed to CEN, CENELEC and ETSI in the field of ICT to enable efficient energy use in fixed and mobile information and communication networks".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

access network: functional elements (that is equipment and infrastructure) that enable communication between an Operator Site (OS) and a customer network

Base Station (BS): network telecommunications equipment which serves one or more cells within a coverage area of a mobile network

base station site: Network Distribution Node (NDN) which accommodates a base station

core network: functional elements (that is equipment and infrastructure) that enable communication between Operator Sites (OSs) or equivalent ICT sites

End-of-Life (EoL): established point in a product life cycle after a period of primary use and at which a decision is required with regard to reuse, recycling or disposal

free cooling: use of low temperatures, external to the ICT site, to reduce or eliminate the need for powered refrigeration

ICT equipment: equipment providing data storage, processing and transport services

NOTE: A combination of Information Technology Equipment and Network Telecommunications Equipment.

ICT site: site containing structures or group of structures dedicated to the accommodation, interconnection and operation of ICT equipment together with all the facilities and infrastructures for power distribution and environmental control together with the necessary levels of resilience and security required to provide the desired service availability

Information Technology Equipment (ITE): equipment providing data storage, processing and transport services for subsequent distribution by Network Telecommunications Equipment (NTE)

Last Operators Connection point (LOC): interface to the fixed access transport networks of one or more operators from which cabling is routed to a customer network

mobile access network: telecommunications network in which the access to the network (connection between user equipment and network) is implemented over the air interface

Network Data Centre (NDC): data centre embedded within the core network

NOTE: A network data centre of a cable access network may be termed a master head-end.

Network Telecommunications Equipment (NTE): equipment between the boundaries of, and dedicated to providing connection to, core and/or access networks

Operator Site (OS): premises accommodating Network Telecommunications Equipment (NTE), providing direct connection to the core and access networks, and which may also accommodate Information Technology Equipment (ITE)

NOTE 1: An operator site that is only connected to the core network is considered as a network data centre.

NOTE 2: An operator site of a cable access network may be termed a local head-end.

Terminal Equipment (TE): principal device within customer premises allowing user access to the services provided by the fixed access network

User Equipment (UE): device allowing user access to the services provided by the mobile access network

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AC	Alternating Current
ATTM	Access, Terminals, Transmission and Multiplexing
BS	Base Station
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
CLC	CENELEC
CLC/TR	CENELEC Technical Report
CP	Customer Premises
CRAC	Computer Room Air Conditioning
CRAH	Computer Room Air Handling
EoL	End-of-Life
EU	European Union
ICCG	CENELEC/ETSI Installations and Cabling Co-ordination Group
ICT	Information Communications Technology
IEC	International Electrotechnical Committee
ISO	International Standards Organization
IT	Information Technology
ITE	Information Technology Equipment
ITIL	Information Technology Infrastructure Library
KPI	Key Performance Indicator
LCA	Life Cycle Analysis
LOC	Last Operators Connection point
NDC	Network Data Centre
NTE	Network Telecommunications Equipment
OS	Operator Site
PUE	Power Usage Effectiveness